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BACHMAN LAPOINTE

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Amendments to the Specification

Please amend paragraphs [0007] and [0033] (numbered as [0009] and [0035] in the Pregrant Publication US2005/0205415) as follows:

[0007] In various implementations, the sputtering may include applying a sputtering voltage to a sputtering target. The sputtering target may encircle an ion flowpath from a source of the first components to the part. The one or more second components may comprise one or more refractory elements. The one or more second components may consistent essentially of Mo. The deposition material may consist essentially of at least one of Ti-6Al-2Sn-4Zr-2Mo, Ti-8AI-1V-1Mo, or Ti-6AI-2Sn-4Zr-6Mo. The part may have lost a first material from a site and the deposition material may be deposited to the site so as to restore the part. The deposition material may have a first interface with a substrate of the part, a bond strength between the deposition material and the substrate being in excess of 50ksi (50,000 psi). The part and the deposition material may comprise Ti alloys or nickel- or cobalt-based superalloys of like nominal composition. The bond strength may be between 100ksi (100,000 psi) and 200ksi (200,000 psi). The deposition material may have a depth of at least 2.0mm. The substrate may have a thickness in excess of the deposition material. The substrate may comprise original unrepaired material. The part may be a Ti alloy turbine engine part and the deposition material may be Ti-based.

[0033] The restoration material is deposited by an EBPVD of an ion-enhanced EBPVD process. The EBPVD process is believed to provide advantageous physical properties via deposition in the absence of a transient liquid phase. EBPVD is believed to have lower residual stress and better adhesion than other processes such as plasma spray deposition. The ion-enhanced EBPVD process is believed to ensure better adhesion and higher quality deposition (namely, a more homogeneous and dense deposited material) at relatively lower temperature than conventional EBPVD. The exemplary deposition is performed in a vacuum chamber at a pressure between 10⁻¹ and 10⁻⁴ Pa, more narrowly, approximately (5-10)×10⁻³ Pa. The exemplary deposition rates are between 10 and 100 micrometers per minute, more narrowly, between 10 and 50 micrometers per minute, with an exemplary approximately 20 micrometers per minute. The

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localized deposition may build up to essentially any depth in one or more stages, the separate stages being characterized by some combination of intervening machining or repositioning of the component relative to the vapor source. Individual stages may well deposit material to depths over 2mm, over 5mm, or even more. For particularly expensive components, the process could be utilized to completely replace lost features. For example, if a blade is broken off of a unitary disk and blade ring, a replacement blade may be built up from the disk. By way of example, adhesion strengths may be in excess of 50ksi (50,000 psi), more advantageously in excess of 100ksi (100,000 psi). One implementation of the exemplary ion-enhanced EBPVD process has produced an adhesion strength measured at 149ksi (149,000 psi). By way of contrast, a non-ion-enhanced process and an air plasma process respectively yielded 22ksi (22,000 psi) and 7ksi (7,000 psi).